

**PERCEPTION AND KNOWLEDGE OF PATIENTS WITH TYPE 2
DIABETES IN HOSPITAL UNIVERSITI SAINS MALAYSIA ABOUT
THEIR DISEASE AND MEDICATION: A QUALITATIVE STUDY**

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THEIR DISEASE AND MEDICATION: A QUALITATIVE STUDY**

By

NUR 'AINA 'AQILAH BINTI NORHISHAM

**Dissertation submitted in partial fulfilment
Of the requirements for the degree of
Bachelor of Health Science (Honours) (Dietetics)**

July 2024

CERTIFICATE

This is to certify that the dissertation entitled “Perception and Knowledge of Patients with Type 2 Diabetes in Hospital Universiti Sains Malaysia about their Disease and Medication: A Qualitative Study” is the bona fide record of research work done by MISS NUR ‘AINA ‘AQILAH BINTI NORHISHAM during the period from April 2024 to July 2024 under my supervision. I have read this dissertation and that in my opinion it confirms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfilment for the degree of Bachelor of Health Science (Honours) (Dietetics).

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DECLARATION

I hereby declare that this dissertation is the result of my own investigation, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research and promotional purpose.



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Date: 4th July 2024

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**PERSEPSI DAN PENGETAHUAN PESAKIT DIABETES JENIS 2 DI
HOSPITAL UNIVERSITI SAINS MALAYSIA TENTANG PENYAKIT
DAN UBAT - UBATAN MEREKA: KAJIAN KUALITATIF**

ABSTRAK

Kajian ini bertujuan untuk mengenal pasti dan meneroka persepsi dan pengetahuan mengenai diabetes dan ubat-ubatan diabetes serta memahami faktor-faktor yang menyumbang kepada pematuhan ubat di kalangan pesakit Diabetes Mellitus Jenis 2 (T2DM) di Hospital USM. Satu kajian kualitatif telah dijalankan yang memberi tumpuan kepada faktor-faktor yang mempengaruhi persepsi dan pengetahuan pesakit T2DM mengenai penyakit dan ubat-ubatan mereka di Hospital USM. Sejumlah 20 peserta telah mengambil bahagian dalam sesi temubual separa berstruktur. Rakaman daripada sesi temubual telah dipindahkan ke dalam teks, dan data kualitatif dianalisis secara tematik. Keputusan menunjukkan bahawa faktor berkaitan pengetahuan, terapi dan psikologi adalah faktor-faktor yang mempengaruhi persepsi dan pengetahuan pesakit T2DM mengenai penyakit dan ubat-ubatan mereka di Hospital USM. Oleh itu, ahli dietetik dan profesional kesihatan lain yang berkaitan perlu membangunkan intervensi yang sesuai untuk memastikan pesakit dapat mengatasi halangan dan meningkatkan faktor-faktor motivasi untuk meningkatkan persepsi dan pengetahuan mereka serta meningkatkan pematuhan ubat. Intervensi seperti ini akan membantu mereka meningkatkan status kesihatan dan kualiti hidup. Kajian lanjut boleh dijalankan dengan melibatkan sampel pesakit dewasa yang lebih besar dan pelbagai kumpulan demografi Malaysia termasuk kepelbagaian etnik.

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ABSTRACT

This study aims to identify and explore perception and knowledge about diabetes and its medication and understand the factors contributing to medication adherence among Type 2 Diabetes Mellitus (T2DM) patients in Hospital USM. A qualitative study was conducted focusing on the factors that affect perception and knowledge of T2DM patients about their disease and medication patients in hospital USM. A total of 20 participants participated in a semi-structured interview session. Recordings from interview sessions were transcribed, and qualitative data was thematically analysed. The result shows that knowledge-related, therapy-related and psychological-related factors are the factors that affect perception and knowledge of T2DM patients about their disease and medication patients in hospital USM. Therefore, dietitians and other related healthcare professionals must develop appropriate intervention to make sure patients can overcome the barriers and increase the motivational factors to improve their perception and knowledge as well as improving medication adherence. Such intervention will help them to improve their health status and quality of life. Further research could be conducted by involving a larger sample of adult patients and different Malaysian demographic group including diversity of ethnicity.

CHAPTER 1: INTRODUCTION

1.1 Background of Study

Diabetes is described by the Centers for Disease control and Prevention as a chronic health condition characterized by an impaired metabolic process that affects the conversion of food into energy. The body's inadequate production of insulin or its reduced efficacy in facilitating the entry of glucose into cells results in elevated blood sugar levels. There are three different forms of diabetes which are type 1, type 2, and gestational diabetes. Type 1 diabetes mellitus (T1DM) requires lifelong insulin therapy since it is caused by an autoimmune reaction that targets cells that produce insulin. On the other hand, type 2 diabetes mellitus (T2DM), is caused by pancreatic insufficiency and cellular insulin resistance. It typically manifests slowly, even in younger individuals (CDC, 2023).

There are currently over 500 million individuals worldwide who suffer from diabetes. This condition affects men, women, and children of all ages, and it is expected to more than double to 1.3 billion people in the next 30 years, with an increase observed in every country. As per the most recent and exhaustive computations, the prevalence rate of diabetes worldwide is at 6.1%, positioning it among the top 10 primary causes of mortality and disability (Ong et al., 2023). By 2030, the value had surpassed the initial estimate of 10.8% and the prevalence in Malaysia was 18.3% (Puteri et al., 2022). This suggests that the prevalence of T2DM among Malaysians was higher than the global prevalence. The concerning increase can be linked to a change in the population as well as lifestyle choices like unhealthy diets and sedentary lives.

Diabetes education or knowledge is a crucial first step that needs to be taken care of to enable patients to enhance their diabetes self-management. Patients can manage their diabetes more intelligently when they have access to adequate information. Numerous research findings demonstrated that individuals with superior comprehension and awareness of diabetes exhibited

improved attitudes and behaviors that subtly enhanced their adherence to treatment (Puteri et al., 2022). Understanding diabetes mellitus can be crucial in motivating the community to prevent and minimize complications associated with the disease as well as helps in lowering the health care costs due to diabetes mellitus. There is a lot of variation in community members' knowledge about diabetes mellitus, but the causes are unclear (Alemayehu et al., 2020).

Nonetheless, several factors, including sociodemographic, educational attainment, family history of diabetes mellitus, prior diabetes training, information source, and others, have been linked to the degree of knowledge regarding diabetes. Based on previous studies in Malaysia, there was still poor knowledge regarding diabetes due to several factors that led to poor understanding of the disease and sub-optimal diabetes care (Abbasi et al., 2018; Puteri et al., 2022; San Oo et al., 2021). Patients' perceptions of their disease are believed to be a significant psychosocial factor that can encourage them to self- manage their diabetes. The cause, course, awareness of symptoms, and controllability of the illness, in addition to a patient-made schematic diagram of the disease, all influence how they perceive it care.

The World Health Organization defines medication adherence as the extent to which a person's behavior complies with the established advice from a healthcare professional. Although adherence and compliance are sometimes used interchangeably, adherence is not the same as compliance (Jimmy & Jose, 2011). Malaysians were nonadherent to blood glucose testing, but they had a moderate level of medication adherence (Jannoo & Mamode Khan, 2019). There has been little quantitative research regarding the relationship between medication adherence and illness perceptions of type 2 diabetes, even though numerous studies have shown that the illness perception of diabetic patients influences their self-care behavior.

1.2 Problem Statement

Based on a previous study by Newson & Parody (2022), it suggests that building knowledge and skills, motivation to manage diabetes outcomes, and addressing challenges related to social support, are crucial for sustaining to medications of diabetes. Health professionals and support networks can play a vital role in providing resources to enhance understanding and assist with the long-term maintenance of diabetes for individuals with Type-2 diabetes mellitus. Thus, there is a need for increased awareness and understanding among Malaysian diabetic patients regarding their condition and medication. Financial barriers, forgetfulness, and challenges in relationships were identified as significant factors affecting adherence.

While a few studies have been carried out in both qualitative and quantitative research design to describe factors affecting perception and knowledge of patients with diabetes mellitus about their disease and medication, most of the research were performed outside Malaysia such as United Kingdom, Japan and Thailand. Little to no literature exists on why patients with type 2 diabetes in our society have such a poor perception of their condition and lack of knowledge about their disease. Moreover, there is still no literature regarding patients' perception and knowledge about their disease and its medication as well as factors that contribute to medication adherences in Hospital USM. Improvement in type 2 diabetes mellitus (T2DM) patients' understanding about knowledge of diabetes and their medication and factors contributing to adherences to medications for diabetes are needed to improve their health condition to achieve better quality of life. Therefore, understanding the perception and knowledge about diabetes and its medication, and factors of medication adherence of diabetes will assist the healthcare practitioner to identify and remove the barriers that prevent these patients from having proper understanding about diabetes and better medication management of diabetes mellitus.

1.3 Research questions

1. What are Type 2 Diabetes Mellitus (T2DM) patients' perception and knowledge regarding their disease?
2. What are Type 2 Diabetes Mellitus (T2DM) patients' perception and knowledge regarding their medication?
3. What are the factors influencing Type 2 Diabetes Mellitus (T2DM) patients' medication adherence at Hospital USM?

1.4 Research Objectives

1.4.1 General objectives

To explore perception and knowledge about diabetes and its medication and understand the factors contributing to medication adherence among Type 2 Diabetes Mellitus (T2DM) patients in Hospital USM.

1.4.2 Specific objectives

1. To explore type 2 diabetes patient's perception, and knowledge regarding diabetes.
2. To explore type 2 diabetes patient's perception, and knowledge regarding their medication.
3. To understand the factors contributing to type 2 diabetes mellitus patient's medication adherence.

1.5 Significance of Study

In this study, it is aimed to explore perception and knowledge about diabetes and its medication and understand the factors contributing to medication adherence among Type 2 Diabetes Mellitus (T2DM) patients in Hospital USM. This study is crucial as all these factors can be an important part in helping dietitian and other healthcare practitioners to have a better understanding towards patients' struggle to understand the appropriate knowledge about diabetes and its medication and have better medication management of the disease.

This research will assist T2DM patients at Hospital USM in perceiving the importance of being aware of having proper knowledge and perception towards their disease and medication, and controlling their medication adherence managing factors that contribute to it such as lack of knowledge, forgetfulness, and family support. As a result of being able to identify the underlying issues, these patients will be encouraged to improve their health state.

Furthermore, the overview offered in this study will push for new ideas, which will be valuable for future discussions by other researchers regarding the perceptions and knowledge on DM and its medication as well as factors that contribute to medication adherence and may lead to a more in-depth analysis of the issue in the future.

1.6 Theoretical Framework

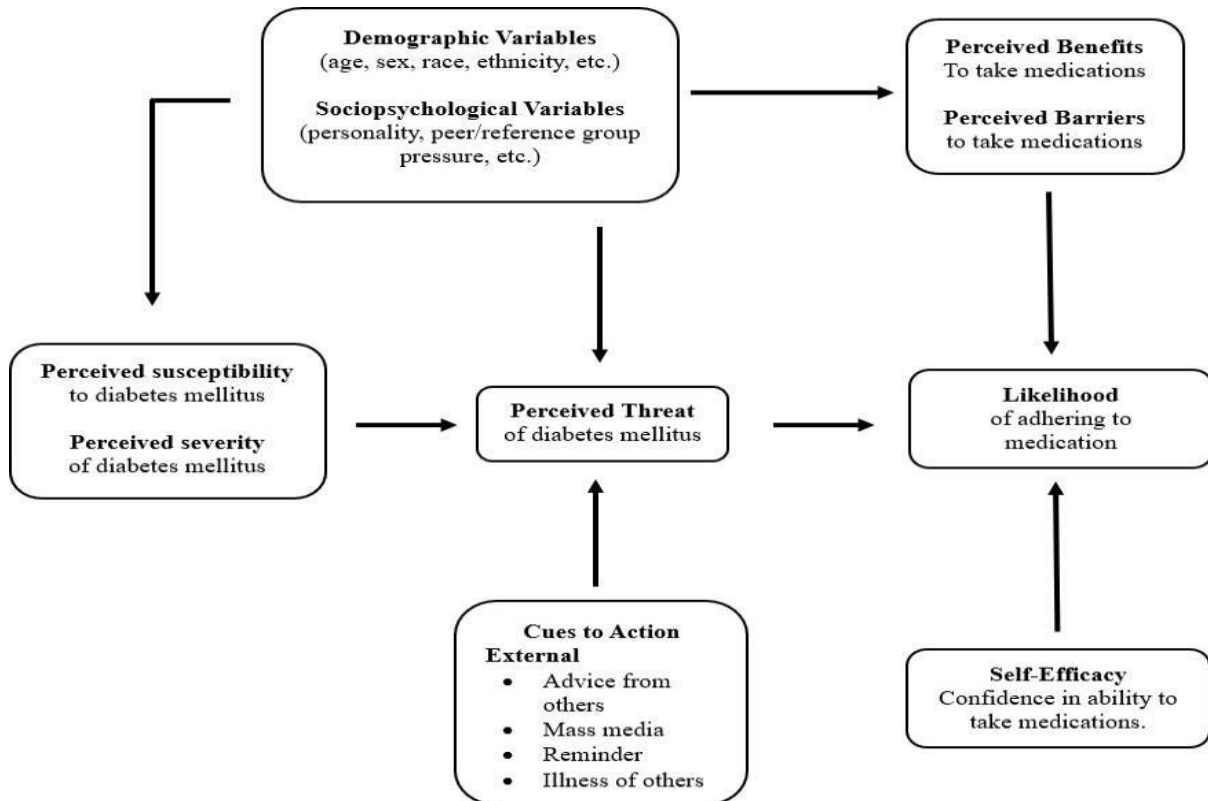


Figure 1: Theoretical framework of Perception and Knowledge of patients with T2DM about their disease and medication pattern (Etheridge et al., 2023)

Based on this figure, patients who perceive that they are susceptible or high risk to diabetes mellitus will adhere to medications. However, patients who believe they are at low risk of developing diabetes mellitus are more likely to not adhere to medications. The perceived severity explained that patients that show high perceived severity of diabetes mellitus cause proactive health-protection behaviors. Additionally, perceived threat is the combination of perceived severity and perceived susceptibility resulting in the psychological state of readiness to act. However, this is solely depending on the knowledge about diabetes. Hence, the higher perceived threats lead to higher likelihood of engagement in medication adherence.

Perceived benefits explain that people with diabetes take medication believing it will work to control blood sugar. Meanwhile, perceived barriers explain the perceptions of difficulties of performing adherence to medications for example, cost of medication, family support and patients believe. These two health beliefs will concurrently relate to likelihood to the adherence to medications. Self-efficacy refers to a patient's perception of their confidence to successfully adhere to medication such as understanding the dose needed each time. Finally, cue to action explains something that triggers patients to adhere to medications. For example, illness of a friend or family members, personal symptoms and pains which will be a cue for them to act. These cues will influence the patient's perceived threat for the condition and increase the likelihood that patients will act (Etheridge et al., 2023).

1.7 Operational Definition

- Perception** : Provide content to specific concepts, like color concepts, or allow reference to specifics in a manner that thought alone could not, and to justify beliefs without necessitating justification (Nes et al., 2023). It is also known as a privilege that is rarely extended to mere beliefs (Nes et al., 2023).
- Knowledge** : Justified true belief (Bolisani & Bratianu, 2018; Oeberst et al., 2016)
- Medication adherence** : The extent to which a person's behaviour complies with the established advice of a healthcare professional (Jimmy & Jose, 2011).

CHAPTER 2: LITERATURE REVIEW

2.1 Perception and knowledge about diabetes

The definition of knowledge is a justified true belief (Bolisani & Bratianu, 2018). In another words, knowledge refers to the understanding, information, skills, and expertise that individuals possess. It is acquired through learning, experience, and observation, and it can be applied to solve problems, make decisions, and perform tasks effectively. Knowledge can be categorized into different types, such as factual knowledge, procedural knowledge, and conceptual knowledge. In the context of the healthcare sector, knowledge is crucial for healthcare professionals to provide quality care, make informed decisions, and contribute to advancements in medical research and practice.

Meanwhile, the definition of perception is to provide content to specific concepts, like color concepts, or allow reference to specifics in a manner that thought alone could not, and to justify beliefs without necessitating justification (Nes et al., 2023). It is also known as a privilege that is rarely extended to mere beliefs. Medication adherence is described as the extent to which a person's behavior complies with the established advice from a healthcare professional (Jannoo & Mamode Khan, 2019). Although adherence and compliance are sometimes used interchangeably, adherence is not the same as compliance. Malaysians were known to be nonadherent to blood glucose testing, although they had a moderate level of medication adherence, based on the previous study.

Poor knowledge from participants could be due to lack of professional guidance, based on a previous study (Newson & Parody, 2022). Most of the participants expressed their dissatisfaction with the diabetes management guidance they received from health professionals, such as doctors, and specifically mentioned that the advice they received regarding diet was ambiguous and inadequate. Hence, knowledge gaps may impede patients from implementing the recommended lifestyle change. Moreover, a person's level of knowledges were highly influenced by information whether there are misperception, misinterpretation, or an ineffective approach in the delivery of information which leads to poor knowledge and management of diabetes among patients. Diabetes educators are essential to comprehensive diabetes care, although there is a severe shortage of these experts (Hussein et al., 2015). The current shortage of paramedics with diabetes education training makes it evident that patients and the community are suffering from a lack direction, and support for diabetes self-management. Thus, diabetes self-management failure results in co-morbidities that raise mortality and total health care costs.

Although individuals may make a medication error while they were in the hospital, these errors hardly caused harm to the patients. The significance of an honest and courteous doctor-patient interaction was highlighted to resolve the medication errors (Barker et al., 2002). Lack of work experience is one factor that leads to medication errors in both patients and healthcare workers who self-administer drugs. Enhancing patient knowledge of the current in-hospital error management systems is crucial for addressing treatment-related issues and building trust. Hence, it is suggested to emphasize the importance of good communication, patient education, and preventive measures to minimize medication errors in the treatment of type 2 diabetes, according to previous study (Mader et al., 2022).

2.1.2 Source of Information

The Healthcare providers (HCP) was the primary source of information about diabetes for patients when it came to counselling, practical sessions, and demonstrations. Based on a study by Robertson et al. (2005) showed that the most popular and favored form of information was verbal communication from the diabetes centre's specialized nursing staff. Besides, the reliance on media platforms, particularly mass media like television, newspapers, radio, articles, and magazines, were another important source of information for the patients. Conversely, media is the most favored option for locating a different source of information. Since healthcare professionals are the most common source of information, any gaps in the chain of information delivery between healthcare professionals and patients may lead to patients looking for information from other sources, which may expose them to inaccurate or unreliable information. Even worse, they might become skeptical and perplexed because of the conflicting information and lose motivation to practice self-management.

Additionally, the prevalence of false information about health varies according to the subject and social media site. There was a moderate prevalence of 40% of health misinformation on Non-communicable Diseases (NCDs), including diabetes, cancer, and epilepsy. The accuracy and utility of the information as well as the quality of the content available on websites like YouTube was observed based on a previous study (Suarez-Lledo & Alvarez-Galvez, 2019). Participants consequently lacked knowledge about the correct dosages and potencies of their prescriptions because of this misinformation. The safe use of pharmaceuticals and medication adherence may be impacted by their lack of medication understanding (Upamali & Rathnayake, 2023). Hence, it is important for medical personnel to give elderly patients with diabetes enough medication education and information to help them understand and follow their prescribed treatment plans.

2.2 Awareness about diabetes Medication

Understanding patients' life experiences and clarifying medication misinformation can help patients address their concerns with medications. There is an importance in adjusting communication about diabetes management to patients' health literacy levels, which suggests that patients' knowledge about diabetes medication may vary, based on the previous study (Huang et al., 2020). Most of the patients discussed that there are some difficulties in learning about specific areas of diabetes. Confusing and inaccurate information about diabetic medications was one of the difficulties. Patients did not know what to do if they neglected or missed their prescription regimen. Furthermore, a few patients were unclear about how to take their medications. Moreover, patients appeared to have varying levels of awareness, ranging from highly aware in both good and bad diabetes status to unaware in taking their medication, regardless of how well or poorly controlled their diabetes is.

An increase of medication adherence is related to enhanced patient-provider communication. Good patient-provider communication can help patients better understand their prescriptions, address issues or obstacles to adherence, and encourage joint decision-making. There are differences in the adherence to diabetes treatment where the proportion of diabetics who received any kind of treatment varied from 52.6% to 99% (Avilés-Santa et al., 2020). This suggests that enhancing treatment compliance is essential for diabetes management. Hence, people with diabetes should adhere to their doctor's suggested course of treatment, which involve taking insulin, oral antihyperglycemic drugs, or both. Adherence to treatment can be enhanced through education, regular follow-up with doctors, and addressing barriers. There is a high degree of medication adherence knowledge possessed by 64.5% of individuals with Type II diabetes mellitus. This is supported by some other study (Abdullah et al., 2019) that reported 53.9% of the patients with Type 2 Diabetes Mellitus had completed their secondary education. Hence, there is no significant correlation between education level and drug adherence.

2.3 Factors Affecting Adherence to Medication

2.3.1 Patient's Belief about Medication & Disease

Medication adherence has been found to be influenced by several factors such as treatment failure, illness progression, an increase in hospital admissions, and higher healthcare expenses. While offering medical advice or treating patients, it is important for healthcare professionals to take their beliefs into account. Based on a study by Lambrinou et al. (2020) it shown many reasons as to why patients refused to adhere to their medication. Some of them believe that insulin is harmful to them, the insulin therapy is not necessary and beneficial to them and the belief on insulin leads to poor quality of life. Moreover, some participants expressed their opinions on the way drugs perform to treat diabetes and a few participants seemed to feel that diet, exercise, and prescription medicine work well together to manage diabetes across all three ethnic groups.

There were reported fear and anxiety about having uncontrolled diabetes and suffering catastrophic consequences which prompted them to start taking medicine and continued to do so because of this fear (Newson & Parody, 2022). A few participants mentioned they were inspired to act against their illness after seeing family members with type 2 diabetes. This greatly influenced patients' belief about the diabetes medication, hence, influenced the patients' adherence to the medication. Furthermore, some participants expressed concerns about the side effects of medication, and a few mentioned reducing their use of conventional medications. Hence, adherence to treatment may be impacted by these perceptions on the efficacy of medications. Patients' perceptions of health, illness, and treatment options might be influenced by their cultural beliefs. One possible explanation for the lower adherence to medications among Malay patients could be their cultural beliefs on traditional Malay treatment. Hence, improving medication adherence requires an understanding of patients' cultural practices and beliefs, including the use of complementary and alternative medicine,

2.3.2 Cost of Medication

Cost of medication is one of the reasons for negative adherence to the medication. There is an anticipated annual cost of medications that decrease blood sugar in the United States from 2015 to 2017 which was \$57.6 billion (Taylor, 2020). This represents roughly 15–25% of the projected yearly expenditure for all prescription medications in the United States. From the standpoint of social justice, people who are least able to purchase diabetic medications are disproportionately affected by their high cost. People without insurance and those with low incomes might find it difficult to pay for these drugs, which could result in inadequate treatment and higher health risks. A study conducted in Pakistan found a direct cost of prescription drugs made up between 46% and 60.4% of all direct costs. One of the primary factors influencing the direct cost of managing diabetes is the cost of prescription drugs (Butt et al., 2022). However, it is significant to note that drug prices can differ between nations, and issues with drug pricing regulations in lower-middle-income nations might raise the cost of prescription drugs.

Among Malaysian diabetes patients, all medications were provided free of charge selected patients from government clinic (Al-Qazaz et al., 2011). However, when the clinic is closed or when patients forget to collect their medication, they may have to buy it from outside, which can be costly. While the cost of medication did not clearly appear as a factor influencing adherence, expensive medication is one of the main reasons for nonadherence. Limited financial resources can make it difficult for patients to afford their medications, leading to poor adherence. Healthcare professionals should be aware of the financial burden that medication costs can impose on patients and explore options to make medications more affordable or aid programs. Moreover, the estimated total cost of diabetes care over a 6-month period according to Malaysian Ministry of Health institutions is RM537,460.81 (Malek Abd Aziz et al., 2014). Seventy-two percent of the overall costs are direct, and twenty-eight percent are indirect.

The projected annual indirect cost per patient is RM1,062.88 and the projected annual direct cost per patient is RM2,684.24. Thus, the annual cost of treating diabetes in ambulatory adults is predicted to be RM3,747.12. Hence, the development of a sustainable and efficient diabetes care system in the nation requires a thorough strategy that considers both direct and indirect expenses.

2.3.3 Difficulty adhering to prescription regimens.

Patients with type-2 diabetes may have difficulties adhering to their prescription regimens due to a common patient-related issue called forgetfulness. It refers to a patient's tendency to neglect taking their prescription medication on time. This can be caused by factors such as being too busy, traveling, skipped meals, stress or emotional problems, and memory issues (Dehdari & Dehdari, 2019). Some patients find it helpful to set alarms or reminders to prompt them to take their medication. Hence, it is important to develop strategies to improve medication adherence, such as using medication reminders or incorporating medication-taking into daily routines, to ensure the effectiveness of treatment for type 2 diabetes. Additionally, type 2 diabetic individuals most frequently miss their prescription doses due to forgetting to take it. Of the patients who were not adhering, 67.21% reported this (Alshehri et al., 2020). Since nonadherence can result in negative effects and a worse quality of life, it is critical to address this issue.

Based on the previous study in Malaysia, (Al-Qazaz et al., 2011) patients with type 2 diabetes frequently forget to take their medications. Many participants in the study reported that they occasionally overlook taking their medication or fail to fill their prescription. Forgetfulness was identified as unintentional nonadherence, and this could be because patients do not believe that taking their prescription is necessary. Therefore, it is essential to take measures to improve memory or to remind patients about their medicine.

Enhancing medication adherence may be achieved via the use of organizing tools and reminder systems (Lim et al., 2022). Patients can use pill organizers or medication reminder apps, set timers or alarms on their phones, or integrate taking their medicine into their daily routines as some of the techniques to help patients remember. Hence, finding a reminder system or organizing tool that suits their way of life is important for patients. Healthcare clinicians can also offer advice and recommendations on how to use these technologies to improve drug adherence.

2.3.4 Adjustment of Dose by Patients.

A few types 2 diabetic individuals acknowledged adjusting their dosages of medicine. Most participants did, however, agreed that they should always check with their doctor before altering their dosage (Al-Qazaz et al., 2011). Patients frequently adjusted their medication schedules by skipping a dose if they had not eaten breakfast or by taking an extra dose if they had a large meal or had elevated blood sugar. Some patients changed the medication dosage they took because of their beliefs about religion on, such as the necessity to fast during Ramadan. Moreover, medication errors can happen around patients leading to self-administer medications among them (Mader et al., 2022). This implies that errors in administering medication may even be made by patients who oversee taking their own medications. Hence, it is crucial that patients receive the right instruction and direction on how to accurately self-administer their prescriptions to reduce the possibility of errors.

The dosage of medicines is an important attribute in the preferences of patients and physicians for type 2 diabetes medications. Most patients and physicians prefer low doses of medications such as once a day or once a week (Toroski et al., 2019). The preference for low dosage and frequency is associated with increased compliance with treatment. Self-medication is one of the barriers to medication adherence in patients with type-2 diabetes (Rezaei et al.,

2019). Self-medication is the practice of patients taking medications based on their own judgment of their physical condition, rather than following the prescribed treatment plan from their healthcare provider. Patients may engage in self-medication due to a lack of trust in medical advice or a belief that they have a deep understanding of their own condition. In the context of type 2 diabetes, self-medication practices include the use of both traditional and western medications. A few participants responded that they sometimes or mostly discontinued medications when feeling well (Sendekie et al., 2022). This behavior contributed to lower medication adherence and potentially impacted glycemic control.

2.3.5 Family Support & Family Involvement

It is indicated that family relationships are important in managing type 2 diabetes. Patients who have supportive family members typically take their medications more consistently and are more motivated to adopt healthy habits. Family members can help patients remember to take their prescriptions on time by acting as a reminder. Family relationships can also affect a patient's understanding and awareness of diabetes as well as how to manage it. A few participants reported that their family members were aware of the adverse effects of diabetes, which affected their own motivation to look after themselves. However, not every patient has a family that is there to support them. A few survey participants reported being independent and not getting much help from their family members, according to a previous study (Al-Qazaz et al., 2011). Poor family support has been found to be an obstacle to medication adherence in patients with type-2 diabetes (Rezaei et al., 2019). Effective diabetes management is largely dependent on the assistance of the patient's family. On the other hand, medication adherence may suffer from a lack of support from family members.

The management of diabetes and the effectiveness of therapeutic lifestyle therapies are significantly influenced by family support. Hence, support from partners and family members can aid in overcoming negative behaviours, optimising behaviours, and enhancing medication and lifestyle adherence. Moreover, it may improve glycemic control and quality of life by reducing medication non-compliance, related depression, and diabetes-related distress. Data from interventional trials assessing the impact of partner and family involvement on health outcomes are, however, limited (Gupta et al., 2019). In general, family support helps patients stick to lifestyle modifications and achieve optimal glycemic control when managing their diabetes. Moreover, patients with type-2 diabetes who depend on others to provide their treatment are found to have difficulties adhering to their prescription regimens. When patients, especially the elderly, depend on other people to give them prescription drugs like insulin injections, this kind of dependency may develop. Individuals who rely on others for medical care may experience difficulties sticking to their prescribed medication schedule if their carer is ill or incompetent at giving the prescription. This may result in irregular or inaccurate drug delivery, which could have a detrimental effect on the patient's health results.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research design

Qualitative research with content analysis approach was adopted to gain a better understanding of the perceptions and knowledge held by T2DM patients about diabetes and its medication, as well as factors of medication adherence. This method was adopted because it permits an adaptable investigation of participants' perspectives and knowledge (Al-Qazaz et al., 2011).

Semi-structured interviews allowed interviewers to synthesize many themes arise from the participants verbally or non-verbal (Kakilla, 2021) based on the focus area of perception and knowledge of patients about diabetes and its medication as well as factors that contribute to medication adherence among T2DM patients. This method also ensures that points are covered with each participant and allows them to raise additional concerns and issues (Wilson, 2014).

3.2 Study Area

This research was conducted primarily in Klinik Dietetik, Klinik Rawatan Keluarga, Klinik Pakar Perubatan and Klinik Warga at the Hospital Universiti Sains Malaysia (HUSM) in Kota Bharu, Kelantan. The sites were selected because patients with type 2 diabetes mellitus (T2DM) often receive treatment at these clinics. There was a room that was used to conduct the interview sessions for participants' privacy and confidentiality. This ensured a neutral and private space that minimized distractions and maintained confidentiality. However, depending on the convenience of the patients, the interviews were conducted either physically or virtually.

3.3 Study population

The participants were recruited from type 2 diabetes mellitus (T2DM) patients in Hospital Universiti Sains Malaysia (HUSM), Kota Bharu, Kelantan. These patients were purposively selected. According to Ames et al. (2019), purposive sampling enabled the researchers to attain a sufficiently broad geographic distribution of primary studies. Participants were chosen using purposive sampling based on the national ethnic ratio of around 67.4% Malays and other indigenous groups, 24.6% Chinese, 7.3% Indians, and 0.7% of other minorities (Key et al., 2023). The major Malaysian society, including Islam, Buddhism, Christianity, and Hinduism, was represented within the ethnic groups of study participants (Ahmadi, Hussin, & Mohammad, 2019).

The sample size in qualitative research was found to be relatively consistent based on the degree of saturation that was needed. A study reached a point of saturation when the researcher determined that all pertinent data had been gathered and that no more data could be obtained from the participants or respondents. A researcher typically stopped gathering new data for a given study when saturation was reached. Hagaman and Wutich (2017) advocated a sample size of 20 to 40 for cross-cultural research to achieve data saturation. As a result, the minimum sample size for this research was 20 participants. Thus, all Malay patients were included in this study. In this study, the sample size has reached data saturation. The researcher also worked with a co-researcher as a team to discuss the prompts and emerging themes to ease the burden on the researcher.

3.4 Subject criteria

3.4.1 Inclusion criteria

Respondents of this study were patients that fulfil inclusion criteria as the following:

1. Adult male / female
2. Aged 19 to 39 years old.
3. Voluntarily agreed to participate in this study.
4. Able to speak and write in English or Bahasa Malaysia (BM).
5. Has a prescription of oral glucose lowering drugs.
6. Has been given a formal diagnosis of type 2 diabetes mellitus (T2DM) of at least 1 year by a physician.

3.4.2 Exclusion criteria

1. Had cognitive, speech and hearing problems, which could affect their understanding of questionnaire and communication.

3.5 Research tool

3.5.1 Interview questions

The interview questions (Appendix 1) are adapted from previous study (Al Qazaz et al., 2011) semi structured questions are used to get open-ended information, probe deeply into private and frequently delicate subjects, and discover what people are thinking, feeling, and thinking about a particular subject (DeJonckheere & Vaughn, 2019). Based on the purpose of this study, interview questions consisted of the perception and knowledge of patients about their disease and medication, as well as factors contributing to medication adherence among type 2 diabetes mellitus (T2DM) patients. This was followed by probing questions to ensure patients could explain their experiences in more detail. The questions were asked in Bahasa Malaysia (BM), and the original questionnaire was translated by an expert from English to Bahasa Malaysia (BM).

3.6 Data collection method

The interviews were performed face-to-face in Bahasa Malaysia. Each interview lasted roughly 45 to 60 minutes. The interview sessions were recorded with their permission to fully assess the participants' responses.

3.7 Study Flowchart

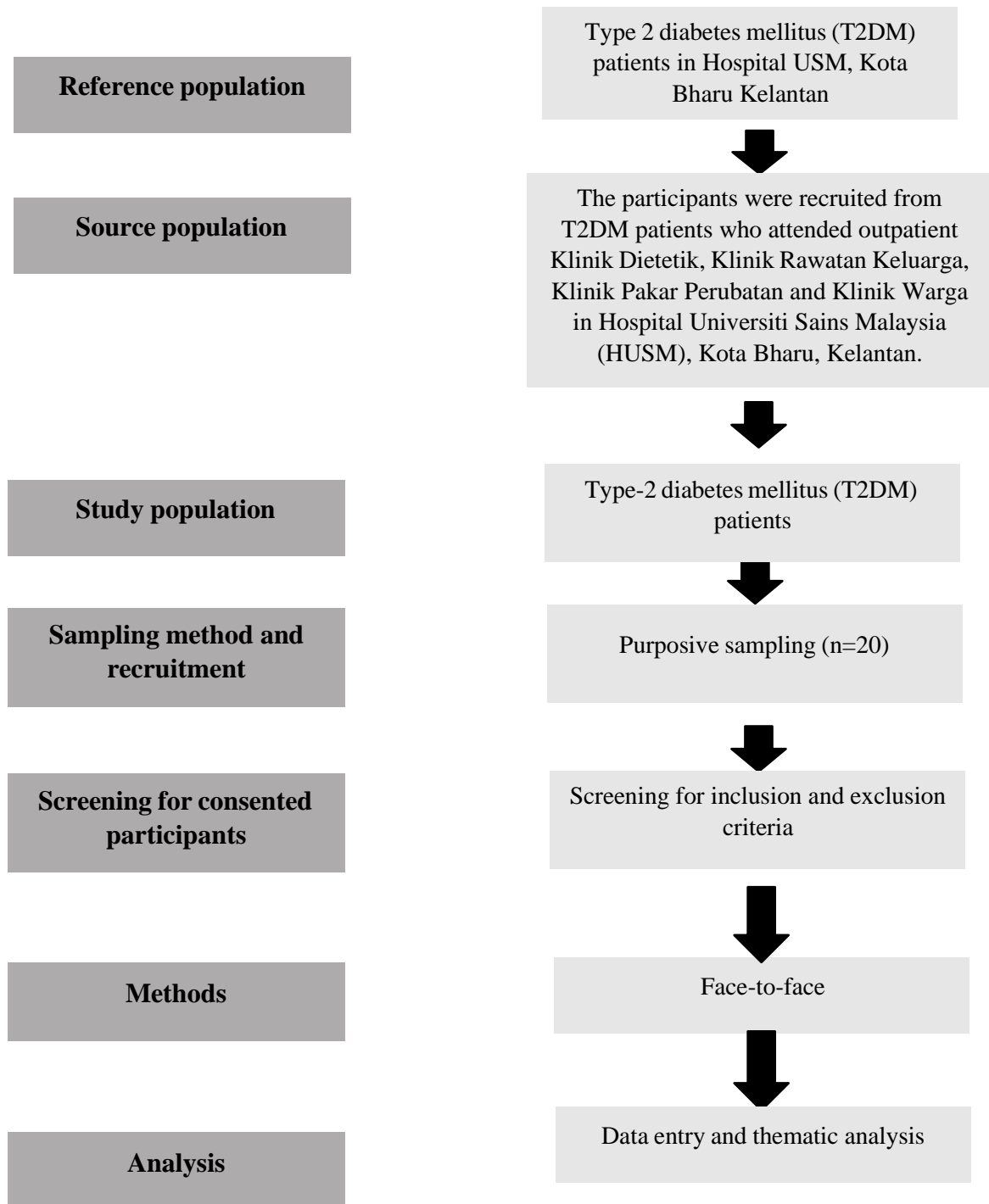


Figure 2: Study Flowchart

3.8 Data analysis

Recordings of research sessions were used to gather and analyze data both synchronously and asynchronously (Saarijärvi & Bratt, 2021). Data in Malay language was collected for the analysis. The supervisor and the researcher discussed the codes. The process of qualitative data analysis included finding, assessing, and interpreting patterns and themes in textual data to determine how these patterns and themes related to the research topic of the study (Belotto, 2018).

Thematic analysis was the process of finding, analyzing, and summarizing themes in qualitative data (Castleberry & Nolen, 2018). The textual material was thus examined using thematic analysis. This study employed a hybrid approach of inductive bottom-up and deductive top-down theme analysis to examine the data (Xu & Zammit, 2020). While the inductive bottom-up method developed themes from the data, the deductive top-down method approached the data with preconceived notions and prior knowledge.

This hybrid thematic analysis was divided into three phases. The first step involved creating a table or spreadsheet with codes and data, coming up with priori codes or themes, and getting acquainted with the subject matter (Swain, 2018). In phase two, the data was added to the table or spreadsheet, summarized, and a priori and posteriori coded. In phase three, the coded text was moved into a Microsoft Word document, and the priori and posteriori codes were compressed into family codes.

The procedure concluded with an interpretation, a theme outline, and the composition of an analysis. To obtain rich data and comprehensive findings, the procedures of sampling, data collection, and data analysis were repeated (Saarijärvi & Bratt, 2021).

3.9 Ethical considerations

3.9.1 Subject Vulnerability

As qualitative research aimed at an in-depth understanding of an issue, it was designed to be probing in nature. This included an exploration of perceptions and knowledge of diabetes patients about their disease and medication as well as factors contributing to medication adherence among T2DM patients, as intended with this study, which could lead to anxiety and distress in respondents. To reduce the risk, training and supervision were provided to the researcher to avoid the risk of harm. No judgment or negative perception was given to the respondents if the information provided was influenced by their culture, religion, and spirituality. Moreover, these interview sessions were not unnecessarily prolonged to reduce inconvenience for participants.

In this study, participants were selected if they did not have any cognitive, speech, or hearing problems. Moreover, they had full autonomy to decide whether to participate or not. Participants were given a consent form detailing their rights, the study's goal, the procedures to be followed, and the potential benefits of participation. Before each interview session, the participants were asked for their informed consent.

Written consent was obtained from the participants after they had been informed verbally and in writing about the purpose and scope of the study, the types of questions asked, the use of the results, and the method of anonymization, which reduced the risk of prejudice. The identity of the respondents was only known to the researcher and was not included in the report and writing. They were also informed that their privacy would always be safeguarded, and their valuable input could be useful in helping other patients deal with diabetes mellitus.